

REMARKS/ARGUMENTS**1. Rejection of claims 1, 3-4, and 16-17 over 35 U.S.C. 102(e) and claims 2, 5-15, 18-19 over 35 U.S.C 103(a):**

5 Claims 1, 3-4, and 16-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Wachi (U.S. 6,819,375). Claims 2, 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wachi in view of Kim et al (U.S. 2002/0018159). Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wachi in view of Matsushita et al (U.S. 6,501,521). Claims 7 are rejected under 35 U.S.C. 103(a) as 10 being patentable over Wachi in view of Tanaka et al (U.S. 2002/0033912). Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wachi in view of Kim et al, and further in view of Matsushita et al. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wachi in view of Kim et al, and further in view of Matsushita et al.

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Response:

Claims 1-19 are canceled, thus consideration of claims 1-19 is no more requested.

20 2. Rejections of claims 20-25 under 35 U.S.C. 103(a):

Claims 20-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wachi for reasons of record, as cited in pages 7-8 of the above-identified Office action.

25 **Response:**

Claim 21 is merged into claim 20 for more clearly defining the characteristics of the present application, and claim 21 is now canceled. According to the amended claim 20, *the upper transparent electrode directly contacts and covers the convex structures on the surfaces of the color filters*. As shown in Fig.3, as well as Fig.4, the 30 transparent electrode 24 directly contacts the color filters 25 and covers the convex structures of the color filters 25. *One of the advantages of the structure is that the convex structures of the present application have small aspect ratio and curved*

surfaces so that the transparent electrode 24 covering the convex structures still has a planar surface. Therefore, an overcoating layer between the transparent electrode 24 and the color filters 25 having recesses is never required. Accordingly, the present application avoids a non-uniform cell gap and solves the problem in the prior art 5 described in par. [0007], lines 7-13, par. [0011], and Fig.2 of the present application.

Referring to Fig.1 of Wachi's reference, the color filters 23 are formed on the inner surface of the lower substrate 20, and the so-called convex structures face the surface of the lower substrate 20. In addition, the data lines 24 are positioned on the 10 planar surface of the color filters 23. Therefore, neither the data lines 24 nor any transparent electrodes directly contact and cover the convex structures of the color filters 23.

On the other hand, protrusions 231 and grooves 232 are formed in the surface of 15 the color filters 23 in Fig.3 of Wachi's reference, wherein the protrusions 231 serve as alignment control protrusions 231. The data lines 24 and the alignment film 25 covers the alignment control protrusions 231 still have the protrusions and grooves on their surfaces for aligning liquid crystals 40 (col.6, line 60 to col.7, line 24). Furthermore, the main object of Wachi's application is to provide the color filter with protrusions 20 for the alignment of the polyimide film and replacing the alignment film. Therefore, the surface toward the liquid crystal layer of the top film on the lower substrate 20 cannot be planar, and the data lines 24 or the alignment films 25 on the color filters 231 do not have a planarizing function for providing a uniform cell gap (abstract, and col.6, line 53 to col.7, line 32). Accordingly, Wachi never teaches a structure that 25 solves the problem of a non-uneven cell gap when the convex structures of the color filters faces the liquid crystal layers, mentioned in par. [0007], lines 7-13 of the specification of the present application, and does not have the advantage described in par. [0011] of the present application.

In addition, the convex structures of the present application positioned on the upper substrate have curved surface as shown in Figs.5-6, thus the convex structures 30 of the color filters are able to scattering light so that a diffusing layer can be replaced

(par. [0011], lines 6-9, par. [0025], lines 5-14, and claims 22-23). However, Wachi never teaches the protrusions of the color filters have the function for diffusing light and can replace a diffusing layer. Furthermore, those skilled in the art could understand that the step-shaped protrusions and grooves of Wachi's cannot have a good light-scattering performance as well as a curved surface of the convex structures of the present application. Therefore, the color filters of Wachi do not have the same structure and cannot perform the same functions limited in claims 20, 22-23 of the present application. As a result, claims 20, 22-23 of the present application should be non-obvious and patentable as compared with Wachi's reference. Reconsideration of claims 20, 22-23 is politely requested.

Regarding to claims 24-25, Wachi never teaches forming a reflection layer positioned between the color filters and the lower substrate, and therefore claims 24-25 should be allowable. Reconsideration of claims 24-25 are hereby requested.

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3. Rejections of claims 26-29 under 35 U.S.C. 103(a):

Claims 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wachi in view of Matsushita et al. Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wachi in view of Tanaka et al.

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Response:

Matsushita et al. and Tanaka et al. never specifically teach forming convex structures in their color filters. They never mention that their upper transparent electrodes, directly covering the color filters, have uniform surfaces, either. As a result, 25 the combination of the references of Matsushita et al., Tanaka et al., and Wachi cannot obtain the structure in claim 20 of the present application. Claims 26-29 are dependent upon claim 20. Therefore, they should be allowable if the amended claim 20 is allowed. Reconsideration of claims 26-29 is politely requested.

30 **4. Introduction of new claims:**

Claim 30 is added for clearly describing that the upper transparent electrode has a planar surface facing the liquid crystal layer so that the present application display has

a uniform cell gap, supported by Figs.3-4, par. [007], and par. [0011]. Wachi never teaches forming a planar surface of a transparent electrode covering the protrusions of the color filters so as to provide a uniform cell gap. Therefore, claim 30 should be allowable.

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Claim 31 is a new claim including all the limitations of the original claims 20 and 24. Since Wachi is silent about forming a reflection layer between the lower substrate and the color filter, claim 31 should be allowable. Claims 31-39 are dependent upon claim 30 and base claims 20-29. They are fully supported by the specification and 10 believed allowable according to reasons in the above-argument. Acceptance and consideration of claims 30-39 are respectfully requested.

5. Interview Summary:

On October 26, 2005, US Patent Agent Scott Margo, registration number 56,277 15 conducted a telephone interview with Examiner Thanh Nhan (Nancy) Nguyen and her supervising examiner. Claims 20 and 24 were discussed. The examiner maintained her rejection of claim 20, stating that the rearrangement of the color filter to be on the upper substrate, as claimed, instead of the lower substrate, as taught by Wachi (US 6,819,375), is within the ordinary level of skill of one skilled in the art.

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Regarding claim 24, Mr. Margo stated that Wachi does not clearly teach that the reflection layer is positioned between the color filter and the lower substrate, as is claimed. The examiner said that additional time would be needed to consider this amendment, and no agreement was reached regarding claims 20 and 24.

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Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Sincerely yours,

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